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Infant Mortality: An American Tragedy

by Christiane B. Hale

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Infant Mortality: An American Tragedy

Summary

Infant mortality is often regarded as the single most telling indicator of a society's quality of life. A low national rate of infant mortality, it is widely held, means a people are blessed with effective health services, a high per-capita income, a possibility of a proper diet, modern technology, and all the advantages of an advanced society. When this measure is applied to the U.S., a paradox appears: the United States, one of the most powerful and technologically advanced societies on earth, spends a greater proportion of its gross national product on health care than other developed nations, yet has not achieved a low infant mortality rate (IMR) commensurate with its wealth.

The magnitude of the U.S. infant mortality problem can be seen in the 1987 figures. That year there were 38,408 deaths and about 3.76 million births, yielding a rate of 10.1 infant deaths per 1000 births. Had the U.S. rate been equal to that found in other developed nations (7.9 in France, 7.9 in the Netherlands, 7.8 in Norway), more than 10,000 infants would have been saved. The provisional U.S. rate in 1988, it should be noted, was 9.9; if correct, this is an improvement over the 1987 figure.

Why is the U.S. infant death rate so persistently high? Part of the answer is related to infant weight at birth. Low birth weight (LBW)—a weight of less than 2500 grams or about 5.5 pounds at birth—is the best predictor of death in the first weeks of life. Compared to babies born in other developed nations, American babies are more likely to be low birth weight: in the 1980s, 7 percent of U.S. babies weighed less than 2500 grams at birth, compared to 4 percent in Ireland and the Netherlands and 5 percent in France and West Germany.

Infant death is clearly linked to poverty, especially if being poor is associated with one or more of the following demographic characteristics of the mother: teenaged, unmarried, and, overriding all other factors, black. Emerging evidence ties these same demographic characteristics to low birth weight.

Health-care services can reduce the risk of low birth weight and infant death. While hard to quantify, it has been estimated that $400 worth of prenatal care could make the difference between a healthy baby and one requiring $400,000 of medical care and other services throughout its life. But health services vary widely from place to place. For many women and children, especially the poor and near poor, access to health services may be severely restricted by financial, geographic, and administrative barriers. Few women and children in the U.S., regardless of income, have access to many beneficial health services, such as postnatal home visits, that are common in other developed nations.

It is axiomatic that the provision of effective health-care services for all mothers and children would reduce infant mortality. The U.S. medical system—a mix of private and public care—seemingly thwarts equal access to quality care. Just how America can and should provide equitable health care endures as the subject of a lively policy debate.

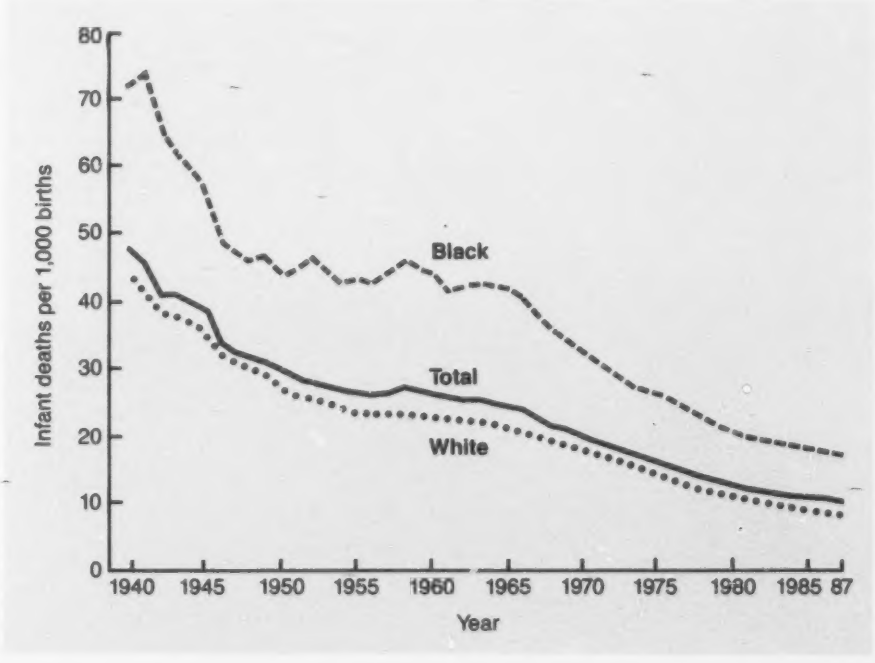
Infant Mortality: An American Tragedy

by Christiane B. Hale

The infant mortality rate (Box 1) is widely regarded as the single best indicator of the quality of life in a society. The lower the infant mortality rate, it is held, the better the general health and social environment. Although Americans are generally perceived as enjoying a high quality of life, the nation's high infant mortality rates contradict that perception.

The United States is considered the most technologically advanced society on earth. It spends almost 11 percent of its gross national product on health care, considerably more than many other developed nations. But its infant mortality rate has consistently exceeded rates in most industrial nations. A number of explanations have been advanced to account for this paradox. It has been variously argued that in those other countries health services are more available and accessible, populations more homogeneous and mutually supportive, and national income more evenly

Figure 1
Infant mortality rate by race, United States, 1940-1987



Source: National Center for Health Statistics.

Box 1. Measuring Infant Mortality and Low Birth Weight

The infant mortality rate (IMR) is calculated by dividing the number of babies who die before their first birthdays in a given year by the number of babies born in that year. Usually, the rate is expressed per thousand live births.

For 1986, the *infant mortality rate* equals:

$$\frac{\text{Number of deaths to infants under age 1 in 1986}}{\text{Number of births in 1986}} \times 1000$$

Two more refined measures of infant mortality are the *neonatal* and *postneonatal* death rates.

The *neonatal mortality rate* for 1986 would be computed as:

$$\frac{\text{Number of deaths to infants under 28 days in 1986}}{\text{Number of births in 1986}} \times 1000$$

The *postneonatal mortality rate* for 1986 would be computed as:

$$\frac{\text{Number of deaths to infants 28 days to 1 year of age in 1986}}{\text{Number of births in 1986}} \times 1000$$

Not all infant deaths among babies born in 1986 occurred in that year; some babies born in 1986 died as infants in 1987. However, except where there are fewer than 20 infants deaths per year, fluctuations attributable to these year-to-year shifts are unlikely to cause significant inaccuracies.

Low birth weight (LBW), officially a birth weight of less than 2500 grams or about 5.5 pounds, is a principal risk factor for infant mortality. To measure the incidence of low birth weight babies, an LBW rate may be calculated by dividing the number of LBW births in a given year by the total number of births in that year. It is usually expressed per hundred live births or as a percent.

For 1986, the *low birth weight (LBW) rate* would be:

$$\frac{\text{Number of births weighing } < 2500 \text{ grams in 1986}}{\text{Number of births in 1986}} \times 100$$

shared. This issue of *Population Trends and Public Policy* assesses the complex problem of infant deaths in America and reviews the policy options before the nation.

Trends in Infant Mortality

At the beginning of this century, the U.S. had an infant mortality rate of about 100 deaths per 1000 births, a rate about equal to the rate in the world's less developed nations in the late 1980s. (Those nations had an average IMR of 84 deaths per 1000 births in 1989, 93 if China is excluded.) The U.S. rate fell rapidly and steadily through the immediate post-World War II period, stagnated until the mid-1960s, then declined more rapidly until the mid-1970s. Since then, the rate of infant deaths has improved only marginally (see Figure 1).

Rates in other developed nations fell more rapidly over the past two decades. To the consternation of public officials for the past quarter century, the U.S. infant mortality rate has been persistently higher than that of comparably developed nations. In 1968, Lyndon Johnson noted the "shocking fact that, in saving the lives of babies, America ranks 15th among the nations of the world."[1] In 1987, almost 20 years later, America's unfavorable ranking was even worse: 19 developed nations had infant death rates lower than that of the U.S. (see Table 1 on page 4).

Part of the explanation of the unfavorable ranking is that the U.S. has a relatively high proportion of babies weighing under 2500 grams or about 5.5 pounds at birth. Low Birth Weight (LBW) babies have a smaller chance of surviving the first month of life, when most infant deaths occur. The U.S. rate of LBW babies exceeds the rates in many

Table 1
Infant mortality rates, selected developed nations, 1987

Rank	Country	Infant mortality rate
1	Japan	5.0
2	Sweden	5.7
3	Finland	6.2
4	Switzerland	6.8
5	Canada	7.3
6	Ireland	7.4
7	France	7.6
	Netherlands	7.6
9	Denmark	8.3
	West Germany	8.3
11	Norway	8.4
12	East Germany	8.5
—	**U.S. Whites**	**8.6**
13	Australia	8.7
14	Spain	9.0
15	United Kingdom	9.1
16	Luxembourg	9.4
17	Belgium	9.7
18	Austria	9.9
19	New Zealand	10.0
20	Italy	10.1
	United States	**10.1**
22	Greece	12.6
23	Portugal	14.2
24	Bulgaria	14.7
25	Czechoslovakia	16.1
26	Hungary	17.4
27	Poland	17.5
—	**U.S. Blacks**	**17.9**
28	Soviet Union	25.4
29	Romania[a]	25.6
30	Albania	28.2

[a]1985 rate

Source: United Nations, *Population and Vital Statistics Report*, various issues; and country publications.

other industrialized nations (see Table 2). In 1987, 6.9 percent of American babies weighed less than 2500 grams at birth, compared to only 4.0 percent in Finland (1985), 4.7 percent in Czechoslovakia (1984), and 6.2 percent in Canada (1985). American black babies generally fare worse than the average, with 12.7 percent classified as LBW in 1987. The overall U.S. rate has changed little over the past decade, ranging between 6.7 and 6.9 percent.

The lack of progress in improving the U.S. ranking on these indicators of infant health has concerned health officials and policymakers. In 1979, when the Surgeon General, the chief U.S. health officer, established five national health goals for 1990, improved infant mortality was one of them.[2] Of the 226 "health objectives for the 1990s" developed in response to those goals, 19 were related to pregnancy and infant health. Among these were lowering the national IMR to 9.0 by 1990 and reducing the disparities among the major U.S. racial and ethnic minorities in the measures of infant mortality, prenatal care, and low birth weight. If these objectives are achieved, no racial or ethnic group would have an IMR exceeding 12 or a rate of low birth weight births above 9 percent; and at least 90 percent of the expectant mothers from all racial backgrounds would receive prenatal care beginning in the first trimester of pregnancy.

In 1986, a "mid-course" assessment (using data from 1982-84) was carried out by the U.S. Public Health Service.[3] At that time, many of the 226 health objectives had already been achieved or would be by 1990. But the fate of 19 pregnancy and infant health objectives was problematic (Box 2 on page 6). The mid-course assessment determined that:

- It was unlikely the objective national infant mortality rate of 9.0 would be reached.
- Infant mortality objectives had already been achieved by whites, Hispanics, and Native Americans, but probably would not be met by blacks.
- The proportion of babies weighing less than 2500 grams (about 5.5 pounds at birth) had attained objective levels in every racial/ethnic group except blacks. It was unlikely black rates would fall to the target level.
- Prenatal care objectives would not be reached for any population group.

Data for 1987, just three years short of the 1990 deadline, point toward the same conclusions.

In the 1980s, almost two-thirds of infant deaths occurred in the neonatal period, the first 27 days of life. Four out of five neonatal deaths were low birth weight babies. Almost half the deaths were to very low birth weight infants who weighed 1500

Improving prenatal care and reducing low birth weight babies are major public health goals.

grams (about three pounds) or less.

Since the early 1970s, most of the improvement in infant survival has occurred among neonates. In 1970, there were 15.1 neonatal deaths per 1000 births; by 1979, the rate was 9.5, and in 1987, it was 6.5, reaching the 1990 objectives.

These impressive gains were not achieved by reductions in the rate of low-weight births. In 1979, 7.0 percent of all babies weighed less than 2500 grams; in 1987, the proportion was 6.9 percent. Virtually all the improvement in neonatal mortality occurred because of technological intervention in newborn intensive care units (NICUs).[4] Since the mid-1970s, it has been medical policy to recommend that mothers who appear likely to have a LBW infant deliver in a hospital with NICUs. If LBW infants are born in other facilities, transport to an NICU is often necessary to ensure survival.

A National Institute of Medicine report estimated the cost of an NICU stay at $13,616 per infant (first hospitalization only, 1984 dollars).[5] Many infants cared for in NICUs require more than one hospital stay during the first few months of life.

About one-third of infant deaths in the 1980s were in the postneonatal period, between the 28th day of life and the first birthday. These deaths are believed to be caused primarily by the impact of poverty on the social, economic, or physical environments in which babies live. There has been speculation that a mix of causes (poverty, "postponed" deaths in LBW infants attributed to perinatal factors, for example) are responsible for postneonatal deaths. So far, however, this hypothesis hasn't been supported by hard evidence.

Postneonatal deaths are easier to prevent than neonatal deaths. Most of the improvement in infant mortality during the first half of the 20th century came about because of reductions in postneonatal deaths. Even in the postwar period, postneonatal death rates fell sharply. In more recent years, however, there has been little real improvement in these rates. In 1979, the postneonatal mortality rate was 4.2; in 1987, it was 3.1 for whites and 6.2 for blacks (see Figure 2 on page 7).

Table 2
Low birth weight rates, developed nations, latest available year*

Country (year)	Rate (percent)
Finland (1985)	4.0
Norway (1983)	4.1
Sweden (1983)	4.5
Czechoslovakia (1984)	4.7
Italy (1981)	5.2
Switzerland (1985)	5.2
Portugal (1985)	5.4
Japan (1985)	5.5
New Zealand (1985)	5.5
U.S. Whites (1987)	**5.7**
Belgium (1982)	5.7
West Germany (1985)	5.7
Austria (1985)	5.8
Greece (1985)	6.0
Canada (1985)	6.2
Denmark (1985)	6.2
East Germany (1985)	6.3
U.S. Total (1987)	**6.9**
England & Wales (1985)	7.1
Poland (1985)	7.8
Hungary (1985)	11.3
U.S. Blacks (1987)	**12.7**

*Low birth weight rate: Percent of annual births weighing less than 2500 grams (5 pounds, 8 ounces).

Source: United Nations, *Demographic Yearbook, 1986* (New York: 1988).

Box 2. Progress Toward 1990 Health Objectives

Health Objective	1978 rate (baseline)	1983 rate ("midcourse")	1987 rate	Attain 1990 target?
Infant Mortality Rate (IMR) ≤ 9				
U.S.	13.1	10.6	10.1	Unlikely
IMR ≤ 12 for any racial/ethnic group				
Whites	12.0	9.7	8.6	Yes
Blacks	23.0	19.2	17.9	Unlikely
American Indians	13.7	11.9	n.a.	Yes
Hispanics	n.a.	n.a.	7.9	Yes*
Neonatal mortality rate ≤ 6.5				
U.S.	9.5	7.3	6.5	Yes
Rate of Low Birth Weight (LBW) babies ≤ 5 percent				
U.S.	7.1	6.7	6.9	Unlikely
Rate of LBW Babies ≤ 9 percent for any racial/ethnic group				
Whites	5.9	5.9	5.7	Yes
Blacks	12.9	12.4	12.7	Unlikely
American Indians	6.7	6.2	6.2	Yes
Hispanics	n.a.	6.1	6.2	Yes
Prenatal Care begun after 1st trimester for < 10 percent of any racial/ethnic group				
Whites	21.8	20.4	18.1	Unlikely
Blacks	39.8	37.8	39.6	Unlikely
American Indians	43.7	40.0	n.a.	Unlikely
Hispanics	43.0	38.5	39.0	Unlikely

Based on data from the National Center for Health Statistics.
*IMR for Hispanics is based on data from 18 states and the District of Columbia.

Why Do Babies Die?

The simplest way to answer this question is to examine causes of death. Over 90 percent of infant deaths arise from one of four groups of causes:

- congenital anomalies;
- sudden infant death syndrome (SIDS);
- "causes arising from the perinatal period;" and
- preventable causes such as infections, accidents, or homicides.[6]

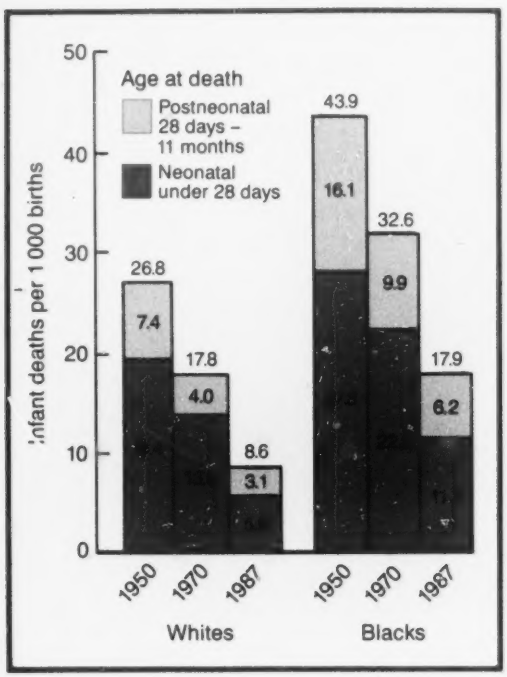
In 1979, 19.1 percent of infant deaths were caused by congenital anomalies, 11.5 percent by SIDS, 51.1 percent by "perinatal causes," and 9.9 percent by preventable causes (see Table 3 on page 11). By 1987, the fractions attributable to congenital anomalies, SIDS, and preventable causes had increased slightly (20.5 percent, 13.6 percent, and 10.7 percent, respectively) while the fraction arising from perinatal causes had fallen (47.1 percent).

A more revealing way to answer the question of why babies die is to determine whether demographic characteristics are linked with greater

risks of infant deaths. Maternal characteristics certainly are. Babies are more apt to die if their mothers are younger than 20 or older than 34, black, unmarried, or poorly educated. Race is the most powerful predictor of death; black infants die at twice the rate of white infants.

Among infant characteristics, low birth weight is strongly associated with the risk of death. Generally, a LBW baby failed to thrive in the fetal period (IUGR or intrauterine growth retardation) and/or was born too early (generally defined as before 37 weeks of gestational age). But when we ask why babies experience growth retardation or are born prematurely, we find that these problems also are strongly associated with maternal characteristics.

Figure 2
Infant, neonatal, and postneonatal mortality rates for U.S. blacks and whites, 1950, 1970, and 1987



Source: National Center for Health Statistics.

Box 3. Causes of Infant Death

Causes of death are often used to estimate how many deaths would have been preventable had circumstances been different. Four categories of causes account for most infant deaths.

1. **Congenital anomalies,** or mental and/or physical traits present at birth which are either hereditary or due to some factor operative during the pregnancy.

2. **Sudden Infant Death Syndrome (SIDS),** a respiratory syndrome defined and recognized within the past decade. Although SIDS must be confirmed by an autopsy, many infant deaths with no readily identifiable cause are attributed to SIDS without an autopsy. One recent study found that the actual rate of SIDS deaths was only about 10 percent of the reported rate. Infections or other preventable causes were the true cause of death in most of the other 90 percent.

3. **Certain conditions arising in the perinatal period,** (the 28th week of pregnancy through the 7th day after birth) such as pregnancy-related problems, complications of labor and delivery, slow fetal growth, or birth trauma.

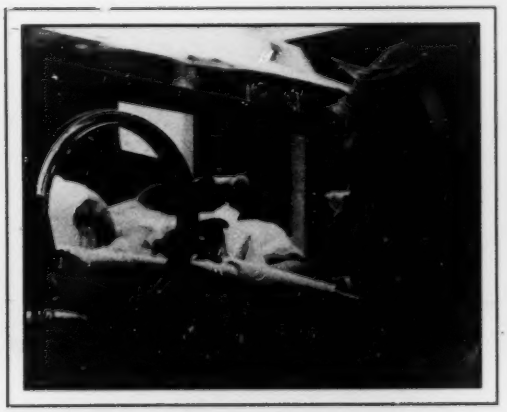
4. **Preventable causes,** a grouping of infectious diseases, accidents, and homicide. The name given this grouping reflects the fact that the means of prevention have been identified and intervention programs already exist.

Based on data from National Center for Health Statistics, "Advance Report of Final Mortality Statistics, 1987," *Monthly Vital Statistics Reports,* Vol. 38, No. 5 (1989); and Carol J. R. Hogue, *et al., Public Health Reports,* Vol. 102, No. 3 (March 1987) pp. 126–137.

A 1986 National Institute of Medicine study identified five general categories of "risk" factors: demographic, medical, behavioral/environmental, health-care risks, and a group of "evolving concepts"[7] (see Box 4). Being black is the overriding demographic risk factor: black babies are twice as likely to be LBW as white ones.

If mothers are young and/or have low levels of education, they are more often living at or below the poverty level. This association logically leads to the next question: Do black infants have higher rates of LBW and death because black mothers more often have characteristics associated with being poor? The answer seems to be "not entirely." Even when maternal age, marital status, and education are controlled, black infants remain twice as likely as white infants to be LBW or to die.[8] A baby born to a married, college-educated black women in her 20s, then, is more likely to be LBW or to die than a baby born to an unmarried white teenager.

It is unclear why this is so. One possibility is that more black women may have other harder-to-measure risk factors for LBW or infant death. Another possibility is that pregnancy outcome is influenced by adverse conditions experienced in the mother's childhood. According to this line of reasoning, infants born to mothers who lived their own childhood under conditions of extreme social disadvantage (as have many black women) would have greater rates of LBW and death.[9] These possibilities are speculative, and more research is needed into these perplexing racial differences in birth weight and infant survival.



Much of the recent improvement in neonatal mortality rates is attributed to newborn intensive care units.

Box 4. What Factors Are Linked to Low Birthweight?

Present Before Pregnancy

Demographic risks
- Race (black)
- Low socioeconomic status
- Unmarried
- Low level of education

Behavioral/Environmental Risks
- Smoking
- Poor nutritional status
- Alcohol or other substance abuse
- Exposure to toxic substances (including occupational exposure)
- High altitude

Medical Risks (mother)
- Number of previous pregnancies is 0 or over 3
- Low weight for height
- Certain diseases (diabetes, chronic high blood pressure)
- Nonimmune status for selected diseases (such as rubella)
- Poor obstetric history (previous birth of a low birth weight infant, multiple miscarriages)
- Maternal genetic factors (such as low weight of her own birth)

Related to Pregnancy

Medical Risks
- Twins, triplets, etc.
- Poor weight gain
- Brief interval between pregnancies
- Low blood pressure, high blood pressure
- Selected infectious diseases
- Anemia
- Fetal abnormalities
- Complications of pregnancy

Health-Care Risks
- Late start or no prenatal care
- Fewer than the recommended number of visits (See Box 5)

Evolving Concepts of Risk
- Physical and psychosocial risks
- Selected infections
- Events triggering contractions

Box 5. What is Adequate Prenatal Care?

In a 1973 report of the Institute of Medicine, David M. Kessner developed an index for measuring the adequacy of prenatal care. This index was based on the relationship between prenatal care and infant death. The Kessner Index defines care as adequate, inadequate, and intermediate depending on the timing of care and the number of prenatal visits. Adequacy of care varies by weeks of gestation. As illustrated in the chart below, care cannot be adequate unless it begins within the first 13 weeks of pregnancy (first trimester) and will always be inadequate if begun at 28 or more weeks of gestational age.

Index of care	Trimester in which prenatal care began		Length of gestation (in weeks)	Number of prenatal visits
Adequate	First		< 13	1 or more and:
			18-21	3 or more
			22-25	4 or more
			26-29	5 or more
			30-31	6 or more
			32-33	7 or more
			34-35	8 or more
			36 or more	9 or more
Inadequate	Third (28 weeks or later)	OR	14-21	0
			22-29	1 or more
			30-31	2 or more
			32-33	3 or more
			34 or more	4 or more
Intermediate			All combinations other than specified above.	

From David M. Kessner, ed., *Infant Death: An Analysis by Maternal Risk and Health Care*, Vol. 1 (Washington, D.C.: National Academy Press, 1973).

Place of Residence

Where a mother and her baby live is also a powerful predictor. Infant mortality rates are generally high in the central core of large cities. Although the national rate in 1986 was 10.4 deaths per 1000 live births, most cities had infant death rates around 12 to 15.[10] Notable exceptions were the District of Columbia, where the rate was 21 (the highest in the U.S.), and Detroit with a rate of 20.

Residence in a rural area may also be a risk factor for infant death. Some of the highest rates are seen in a band of southeastern counties stretching from South Carolina through Arkansas and in some large sparsely-populated counties in the West.[11] Significantly higher rates of postneonatal death have been found in rural Alabama among all black and some white infants.[12]

Individual states vary greatly in their infant mortality rates. The difference in rates between the

U.S. and other developed nations is roughly equivalent to the difference in rates within the U.S.[13] In 1987, those rates ranged from a low of 7.2 deaths per 1000 births in Massachusetts to a high of 12.7 in South Carolina and Georgia.

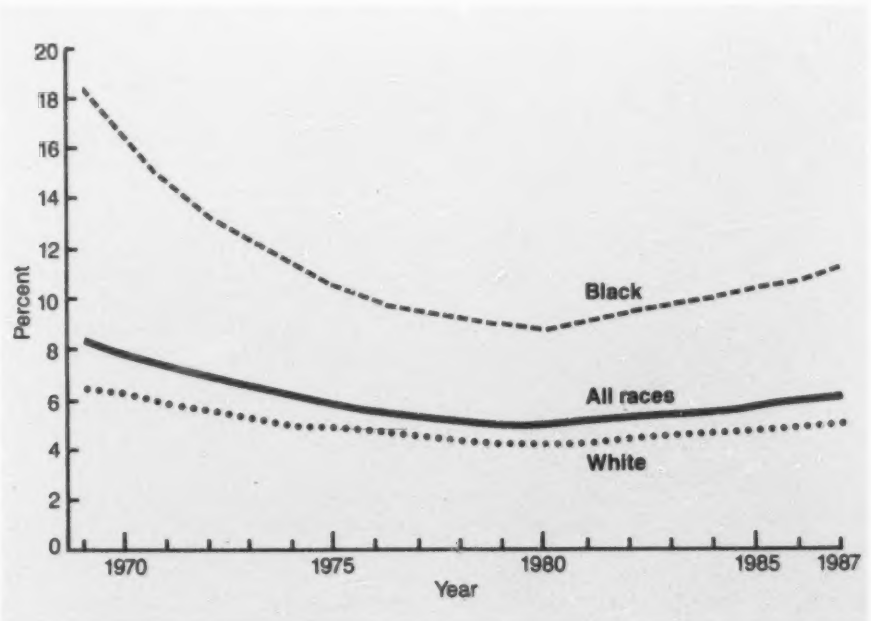
Interstate differences in infant mortality are puzzling. One may speculate that they reflect differences in the composition of the individual state populations. This may account for regional variations but seems an unlikely source of interstate variations within the same region of the country.

A more plausible explanation may lie in some as-yet unspecified link with interstate variability in health services. Until 1981, federally-funded, mandatory "categorical" programs, operated by state and local health departments, provided free or low-cost services to poor or near-poor women. One feature of these programs was a complex reporting system to ascertain state compliance with national guidelines. The 1981 Omnibus Budget Reconciliation Act eliminated categorical programs and established the Maternal-Child Health (MCH) Block Grant.

In creating the block grant, Congress eliminated national standards as well as most requirements for state reporting. Defining eligibility and service components was left largely to the individual states. Eight years later, each state has evolved its own way of meeting the health needs of poor and near-poor mothers and children.

These ways vary because funding for MCH programs varies from state to state. At the national level, the initial appropriation for the MCH block grant did not equal the amounts spent on the displaced categorical programs. Despite the eroding effects of inflation in the early 1980s and the increasing number of mothers and children living below the poverty level, the original appropriation

Figure 3
Percentage of births to mothers with no or late prenatal care by race, United States, 1969-1987



Source: National Center for Health Statistics.

for the block grant has not been increased significantly since 1981.

Some state or local governments spend generously to augment the MCH block grant, others do not. The result is a national patchwork of maternal and child health services: some programs supported by the block grant are operating at lower levels than in 1981, while others offer an impressive array of services to poor and near-poor mothers and children.

Importance of Health Care

At least three kinds of health services can reduce infant deaths. One is prenatal care. Adequate prenatal care can reduce the risk of LBW and infant death associated with maternal characteristics and residence[14] (Box 5). It has been estimated that every dollar spent on prenatal care targeted at low-income, poorly-educated women could save $3.38 during the first year of an infant's life and perhaps as much as $400,000 during its lifetime.[15] Yet, in the 1980s, an increasing proportion of women giving birth had late prenatal care or none at all (Figure 3). This is especially true of black women.

Postnatal home visits by health-care workers, common in many European countries, are rare in the U.S.

Child health services can also reduce infant mortality. However, there seem to be significant gaps in these services in the United States.[16] For instance, perhaps as many as one in ten infant deaths in 1987 were from causes which could have been prevented by child health services (see Table 3).

Even greater improvements would be possible if health-care services were as broadly defined and applied here as in Western Europe. Routine West-

Table 3
Causes of infant deaths: United States, 1979 and 1987

	Percent distribution of infant deaths					
	All races		White		Black	
Cause of death	1979	1987	1979	1987	1979	1987
All causes	100.0	100.0	100.0	100.0	100.0	100.0
Congenital anomalies	19.1	20.5	22.8	23.9	11.5	12.7
Sudden infant death syndrome (SIDS)	11.5	13.6	11.4	14.0	12.8	12.6
Causes arising in perinatal period	51.1	47.1	50.0	43.8	55.5	55.3
Preventable causes	9.9	10.7	8.8	10.0	11.0	11.9
All other causes	8.4	8.1	7.0	8.3	9.2	7.5

Source: National Center for Health Statistics, *Monthly Vital Statistics Reports*.

ern European health care includes transportation to clinic appointments, paid postnatal leave from employment, postnatal home visits by trained workers, and financial supplements to help families pay the costs of bringing up their children.

Finally, family planning programs and legal abortion may reduce infant mortality by enabling women to avoid unwanted childbearing. Improvements in infant survival during the early 1970s have been linked to expanded availability of birth control services following initiation of the national family planning program in 1970. In one calculation, legal abortion services have also been connected to substantial reductions in infant mortality. Many women choosing abortion, for example, have one or more of the maternal "risk factors" linked with infant death.[17]

Barriers to Adequate Care

The overall organization of the U.S. health service creates barriers between providers and seekers of care. The U.S. has one of the least integrated, dual health-care delivery systems—one private, the other public—in the Western world. Within the same community the private health-care system may have excess capacity while the public care system has long waiting times for appointments.

Most Americans have misgivings about the present system. A recent Louis Harris/Harvard poll found that 89 percent of Americans believe the system needs fundamental reform, and over 60 percent would exchange it for the Canadian approach in which the government guarantees access to services.[18]

Unlike all other developed nations and many developing ones, the U.S. does not guarantee even pregnant women and their children access to health care. What care one gets and where one gets it—in the private or public system—are largely determined by economic factors and insurance status. Women in their childbearing years have three ways to pay for care for themselves and their children: their own funds, private health insurance, or Medicaid (the federally-funded insurance program for eligible women and their children).[19]

About one in four women age 15 to 44 either has no insurance coverage or has policies that exclude children, pregnancy-related charges, or both. If they have the funds, these women can generally purchase care directly. If they do not, and public clinics are available, uninsured women can get care. If not, they are dependent on the goodwill of physicians and hospitals, an increasingly rare commodity in lawsuit-conscious America. It is not surprising that these women are most apt to have little or no prenatal care.

About 64 percent of women have private health insurance that provides at least some coverage for children and pregnancies. These policyholders are manifestly more likely to obtain adequate prenatal care than uninsured women, possibly because the private plans reimburse physicians and hospitals at "usual and customary" rates.

Medicaid covers an estimated nine percent of women age 15 to 44 and their children. The extent of this coverage has decreased significantly in the last decade. In 1976, about 65 percent of the poor were covered by Medicaid but by 1983 the proportion had fallen to 38 percent.[20]

Medicaid-covered mothers and children generally get care in public clinics. Often their prenatal care is less than adequate in terms of timing or number of visits. A recent National Institute of Medicine report cited time-consuming enrollment procedures and crowded clinics as the major reasons for this.[21]

Medicaid eligibility has historically been determined by the individual states. At present, federal law requires only that states offer Medicaid coverage for single poor mothers and their children. "Poor" is defined in terms of an eligibility ceiling based on the official poverty level established by the federal government. The maximum income ceiling for Medicaid recipients is established by each state and has varied considerably depending upon the state's resources and the political climate.

These differences in eligibility ceiling remain a probable factor in interstate differences in infant mortality rates. For example, in 1986, a family of four was officially below poverty level if its annual income was below $11,203. Women and children in Alabama with family incomes at 16 percent of the poverty threshold (or just under $1,800 for a family of four) were ineligible for Medicaid, while in California, the ceiling was 109 percent of poverty (or $12,211 for that same family of four). Forty-one states had Medicaid eligibility ceilings ranging from 25 to 74 percent of the poverty level. The national median threshold for medicaid eligibility was 49 percent of poverty—equal to an annual income of $5,489 for a family of four.[22]

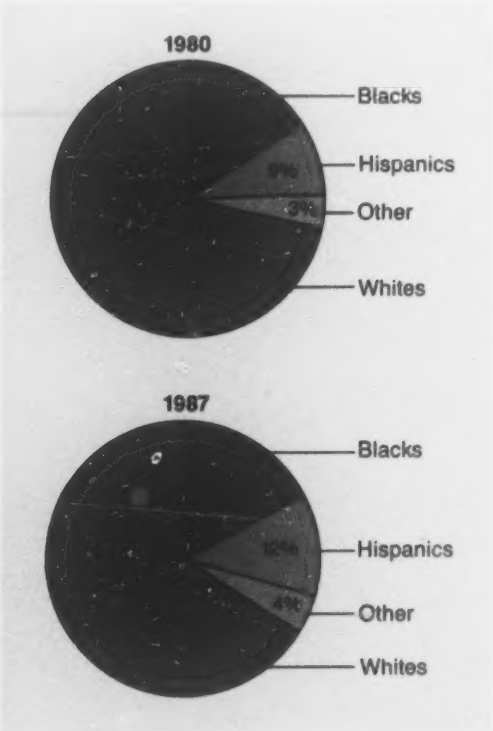
These differences should diminish considerably under new policy initiatives. Since 1986, states have had the *option* to provide Medicaid coverage for married poor women and their children, and about two-thirds have done so. Beginning July

1990, states will be *required* to provide Medicaid coverage for all pregnant women and their children living at or below 100 percent of poverty.

Policy Implications

This paper began by noting that comparatively high rates of infant death in the U.S. have been attributed to population heterogeneity, poverty, or differences in the way health services are organized. Women giving birth have become more heterogenous in the past decade. White non-Hispanic mothers accounted for 71 percent of 1980 births but only 68 percent of 1987 births (Figure 4).

Figure 4
U.S. births by race/ethnicity, 1980 and 1987



Note: Hispanics may be of any race. For this graph, Hispanics of white, black, or other races were included in the separate Hispanic category.

Source: Author's estimates based on data from the National Center for Health Statistics.

While the proportions of births to teenage mothers or women with fewer than 12 years education declined in the same period, the proportion contributed by unmarried women (who experience higher infant mortality rates than married women) has risen from 17 percent to almost 24 percent (Figure 5 on following page). Both non-white and unmarried mothers more often live below the poverty level, so perhaps there has been an increase in both heterogeneity and poverty among mothers and infants.

Many policy issues engendered by America's high infant mortality rate are inexorably tied to the larger issue of social and economic equity. How can America provide a better education, a higher income, and an improved environment for the nation's disadvantaged? To what extent is the public prepared to invest in social programs for the poor?

By 1987, growing public concern and the seeming intractability of the infant mortality problem moved Congress to create the National Commission to Prevent Infant Mortality, headed by Lawton Chiles, former Senator from Florida. The Commission's 1988 report has largely set the agenda for policymakers.

The Commission called for "universal access to early maternity and pediatric care for all mothers and infants" and a "sustained, broadly based effort" to realize that goal. The financial issue was clear: "The nation's hospital bill for keeping low birthweight babies alive during their first year of life," it was argued, "can be as high as $2 billion a year. The cost of providing front-end prenatal care for those women who do not currently receive it could be as little as $500 million." As a plan of action, the Commission recommended, among other things, that:

- The Medicaid program should be expanded to cover all pregnant women who have family incomes at or below 200 percent of the federal poverty level. In addition, access tests for pregnant Medicaid applicants would be eliminated and eligibility would last through the infant's first year.
- The private sector should expand available prenatal and health-care coverage under its insurance programs; self-employed and unincorporated businesses should be allowed to deduct insurance costs as a business expense; and insurance pooling mechanisms should be established for small businesses.

- Available maternal and child-care services, now scattered among 14 federal programs, should be centralized and coordinated. Clients, as a result, could have "one-stop" service at a single center.

- All levels of government and the private sector must make a concerted effort to alert all women of childbearing age to the need for and availability of appropriate health care.

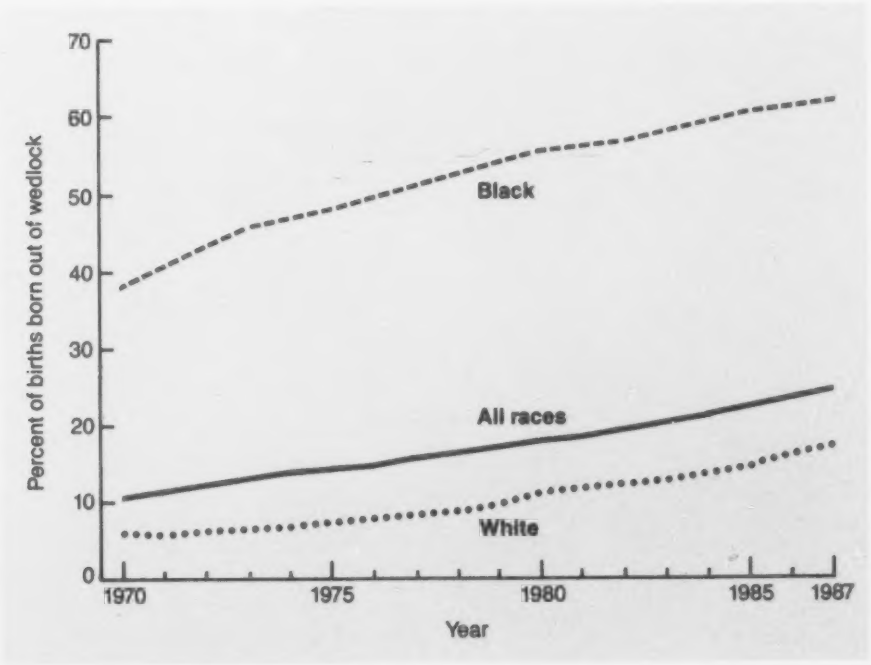
In essence the Commission has recommended that every mother and every baby in the U.S. should be able to get the health care they need even if the government has to guarantee access. This recommendation has drawn support from the American Association of Retired Persons, the American Medical Association's Health Policy Agenda, and a widening group of public figures such as former Presidents Ford and Carter and the National Governors' Conference.

More recently, President Bush appointed a 14-member task force from eight federal agencies to recommend to the Administration how infant mortality might be reduced. This group is also charged with coordinating existing programs which might attack the problem.

Better coordination addresses a portion of the Commission's recommendation. But, as the Commission's report recognized, efforts to reduce infant mortality will also require that health services for mothers and children be made more available and more easily accessible. In turn, these changes will require costly modifications in the U.S. health-care system.

The present approach to health care in the U.S., dating from the 1960s, is keyed to deliver care to those who can pay for it. The federal government has undertaken to guarantee access to health care only for the elderly and some groups of handi-

Figure 5
Percent of U.S. births born out of wedlock, by race, 1970-1987



Source: National Center for Health Statistics.

Policymakers will have to determine who has access to medical care, and how to pay for it.

capped people. Now, policymakers must consider the recommendation that this guarantee be extended to pregnant women and their children. This recommendation raises several questions about the terms of the debate: what is "health care"? Does that definition include the social services found in most developed nations today? Does care include access to expensive high-technology interventions as well as routine primary care?

In these discussions, it is likely that additional questions will be raised about the health-care system itself. Should the present two-tiered public/private system be modified? If so, how? What will be the role of private insurers? Of the physician as private practitioner? How can we generate universal access to care in far-flung rural areas without compromising individuals' rights to practice where they choose? Finally, how will we pay for it?

The search for answers to the last question will probably focus first on expanded funding for the MCH block grant and Medicaid. The 1990 Bush budget proposed leaving the MCH block grant at about $500 million. This is essentially level funding which does not reflect the increasing need for subsidized services to meet today's demands.

Congress, however, was ready to make modest increases in the programs, with funds set aside for such programs as "one-stop" shopping (centers), home visits, and screening of newborns for genetic diseases.

Another Bush proposal would require states to expand Medicaid eligibility to 130 percent of poverty and would permit expansion to 185 percent. But the proposal's fate is in doubt because it is opposed by the National Governors' Conference. This group reasons that the Medicaid expansion would be funded by a $340 million reduction in Medicaid administrative payments now made to states, not by new federal funds, in effect leaving the states to pay for the expansion.

Conclusion

Public policy approaches to the problem of infant mortality in America reflect the public's ambivalence. On one hand, it has been amply demonstrated in other developed nations that an investment in universally available and accessible health-care services can substantially reduce infant mortality. The objective of a healthy mother and child is proverbial; the saving of a child is an evocative image that suggests the sanctity of life and society's primal obligation. Various officials argue persuasively that adequate child care can ward off later costs associated with anti-social behavior, mental handicaps, and general health problems. Economists contend that the well-being of today's children will determine the quality of tomorrow's work force in an increasingly competitive world market.

On the other hand, it remains to be seen whether the American public is willing to spend public money to fund the steps needed to reduce infant deaths and to improve the health of mothers. Elected officials, constrained by budgetary ceilings and a public aversion to new taxes, are reluctant to declare a "War on Infant Deaths" because that initiative would require expensive reforms in health care. But in confronting the dilemma of infant mortality in America, we are all well advised to remember what the National Commission to Prevent Infant Mortality said in the conclusion of its report: The question is not whether we will pay the price to reduce infant mortality, the question is whether we pay now or pay later.

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